

Organized Hole Conducting Polymer/Nanoparticle Composite Solar Cell Fiber, Phase I

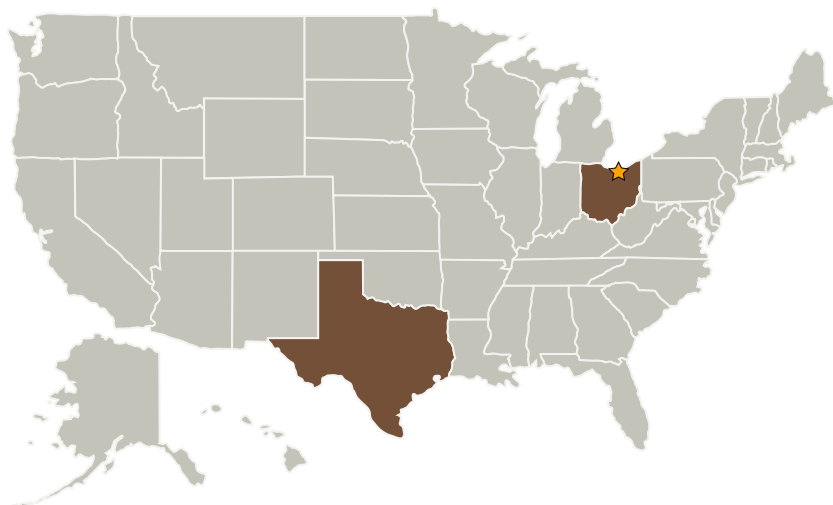
Completed Technology Project (2006 - 2006)



Project Introduction

Recent innovations in noncrystalline solar cells are beginning to emerge as viable replacements to traditional CVD grown single crystal counterparts in applications that demand high specific power, low product cost (\$/sq.ft.) and ultimately scalable unit energy cost (\$/W). Future NASA missions stand poised for adopting these new photovoltaics systems that are deposited onto lightweight, flexible substrates. Nanohmics proposes to fabricate a heterojunction solar cell composite consisting of high weight fraction titanium dioxide nanoparticles blended with amphiphilic, regioregular conducting polythiophene that are highly organized at an air-water interface. Furthermore, Nanohmics is proposing to prepare a novel device geometry that involves a low-cost, co-axial deposition process of all the cell layers onto core metal (e.g. copper, aluminum) or metal-coated fibers. Deposition of the blocking layers, heterojunction phase, and transparent conducting electrode in this fashion will lead to individual solar cell "threads", Suntwine™.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★ Glenn Research Center(GRC)	Lead Organization	NASA Center	Cleveland, Ohio
Nanohmics, Inc.	Supporting Organization	Industry	Austin, Texas



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Glenn Research Center (GRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Primary U.S. Work Locations

Ohio

Texas

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX03 Aerospace Power and Energy Storage
 - └ TX03.1 Power Generation and Energy Conversion
 - └ TX03.1.1 Photovoltaic